BOARD OF INSPECTION AND SURVEY

Notes for the Anti-Submarine Warfare officer

1. **General Overview.**

A. INSURV will conduct a comprehensive material inspection of your ship. The information in this handout will assist you in presenting ASW equipment to the board.

B. Your inspection team will consist of uniformed members of the Board of Inspection & Survey and civilian inspectors on temporary duty with the Board. Each functional area within the ASW area (passive/active sonar, towed array, fire control, torpedo tubes, fathometer, etc) will normally have one or more inspectors assigned.

C. Four to six weeks prior to the inspection, you will receive the Combat Systems Demonstration Test Package (CSDTP) from NWAD, Corona, CA. Your familiarity with and implementation of the CSDTP is central to the success of your INSURV effort.

The CSDTP is broken down into warfare areas (ASW/USW, Aviation, etc.). Each area in the CSDTP has a list of equipment/system tailored to each ship and, beside each individual equipment/system, a list of tests to be conducted on that equipment/system. These tests are conducted using applicable PMS MRC's or technical manual procedures. Appendixes detail required support services and procedures for underway operational demonstrations (ASW Operational Demonstration (Opdemo)). Dissemination of the CSDTP down to the work center supervisor level is strongly recommended.

Additionally, to ensure that your INSURV runs smoothly, you know the status of your equipment and to document deficiencies, conducting these tests prior to INSURV arrival is advisable.

D. It is advisable and preferred that the following ASW suite tests are accomplished prior to the inspection (up to 1 month) due to the limited time available:

Test	Required Documentation to be presented
(1). Sonar self-noise.	Graph of self-noise results against the class curve and raw data.
(2). Receiver sensitivity.	Results of receiver sensitivity PMS.
(3). Sonar source levels.	Results of sonar source level PMS.
(4). Sonar dome dive.	Must be accompanied by FTSCLANT/PAC or NAVSSES sonar dome technical assistant.

During the INSURV, present to the uniformed inspectors a, and source level tests, and corrected dome dive deficiencies. A dome dive prior to inspection can be coordinated with NAVSSES Philadelphia by calling 1-800-322-7379 and speaking to Mike Bresnan or Bob Bohenski.

2**. Conduct of the Inspection.**

A. The inspection will focus solely on the material condition of the ship and installed equipment. Watchstander proficiency, administrative programs, etc., are

not evaluated. However, completion of the inspection in the limited time available (2.5 days) requires that the ship execute the agenda smartly.

B. Demonstrations are not conducted involving live ordnance. Be prepared to fire torpedo tube air slugs and conduct simulated VLA launch as appropriate.

C. There are no hidden agendas. PMS is the primary inspection criteria, followed by NSTM's, technical manuals, technical bulletins, ordnance publications and ship's drawings.

D. Inspectors will not operate your equipment. Ship's force will perform all demonstrations. Inspectors do not meet the two person rule second person requirements.

E. INSURV is a snapshot in time of the ship's condition. Deficiencies that exist at any time during the inspection will be documented. If a deficiency is corrected and if time permits, the inspector will reinspect the equipment and annotate the deficiency as "corrected". Ship's force troubleshooting/repair of equipment deficiencies will be performed after the inspector has completed his/her inspection of that equipment. At no time will the inspection be hampered by repair efforts.

F. Ensure all technical assistance is completed or suspended prior to the start of the inspection. Unless otherwise told, no outside work or technical assistance is permitted during the inspection. Options for repair of equipment that is totally inoperative and affects the conduct of specific demonstrations such as ASW Opdemo will be discussed on a case basis.

G. All equipment and personnel safety devices and features such as electrical interlocks and cooling water flow switches are expected to be fully operational and will be demonstrated. If a safety device or feature has been defeated by whatever means (jumpered, removal, etc), the equipment or system served will be considered inoperative. The equipment/system will be considered operational when the safety device or feature has been correctly repaired and satisfactorily tested.

3. **General Notes.**

A. A combat system brief should be conducted immediately following the ship wide arrival brief. Detect to Engage (DTE) and the ASW Opdemo will be briefed at this time, as applicable. A ship's representative shall review scheduled services and the conduct of the events, then an INSURV representative will explain grading criteria (also contained in Opdemo instruction) and provide any additional guidance to ensure that ASW Opdemo requirements are fully understood.

B. OCSOT will not be observed by the INSURV team. However, it is strongly recommended that an OCSOT be conducted by the ship after combat systems testing has ceased on Monday to verify the combat system operation.

4. **Ordnance Handling Equipment.**

A. Torpedo handling equipment, slings, booms, dollies, hand-lift trucks, etc, organic to your weapons handling will be inspected by either the civilian technical assistant or a uniformed member. All items of handling equipment must have appropriate weight test/safety certification data available (tags or documentation). Rig the torpedo over-the-side handling system for inspection when the INSURV team arrives.

B. Magazines will be inspected IAW the requirements of OP 4 and NAVSEA S9522-AA-HBK-010. Tests of the sprinkler and alarm systems will be IAW applicable MRC (i.e. MRC 5221/M-1). INSURV Weapons inspectors will observe the actual tests. Liaison with your Ordnance/Gunnery officer to determine when your magazines will be inspected.

5. **PMS Checks.**

A. INSURV will attempt to gauge the effectiveness of your PMS efforts. During the inspection, the inspector will review your 13 week file and select one or more checks (signed off as complete) from each functional area. The inspector will spotcheck the individual listed as having accomplished the maintenance action. The inspector will look for the individual to have an understanding of the check, the ability to locate and acquire the required tools and materials, and obvious signs that the check was done/not done (i.e. access plate bolts that should have been removed covered with multiple layers of paint).

B. INSURV will evaluate the validity and quality of the CSMP. CSMP validity is a comparison of major deficiencies discovered during the inspection with those that are already on the CSMP. CSMP quality is an objective evaluation of the clarity of the CSMP jobs. All deficiencies discovered during INSURV that are on the CSMP and additional jobs as required to total at least 10 will be reviewed.

6. **Documentation.**

The following items should be assembled in a central location:

Combat Systems Smooth Log
Thirteen Week File
Current Quarterly PMS Schedules
Latest CSRR/CSA/CSMRR results
Torpedo Tube Inspection Results
Ordnance Handling Eqpt Allowance
Alignment Reports
Latest: Sonar receiver sensitivity results
Sonar source level results
Sonar self-noise level results
Sonar WQM-8 results
Dome inspection results
Authorization Documents for Equipment in TYCOM authorized IEM.
Latest CSMP (separated by work center)

7. **ASW OPDEMO**

Inspectors will observe the ASW Opdemo from critical control stations (i.e. CIC, Sonar Control, UBFCS console). Thoroughly review INSURVINST 4730.22 (Standards for Surface Ship Anti-submarine (ASW) Demonstration) contained in the back of the CSDTP and available from the uniformed ASW inspector. Although this is not a tactical exercise, we will monitor the event both within Sonar Control

and from the ASW plot on the DRT or NC2. Your regular ASW watch team should be utilized and the normal flow of information between control stations should be used. Contact us at 804-464-7881 to discuss any concerns in regard to this event.

8. **Errors During Opdemo.**

For the purposes of ASW Opdemo the following definitions apply:

A. Operator error: When an equipment operator takes action which prevents the equipment/system from performing its expected function. For example, the MK-116 console operator pushes the "break engage" button when he/she intended to push the Fire button. If something of this nature happens, let the inspector know immediately so that we can try again. Operator error is of an innocent nature and is not penalized.

B. Personnel error: A system is not capable of supporting an engagement due to actions of personnel. For example, cooling water is secured to a system and the system trips off the line. Personnel errors are cognitive in nature and as such are fully penalized.

9. **Reporting of Deficiencies**

A. Deficiencies will be categorized as part one (major), part two (minor), or part three (pass to history). These categories are indicated by the first digit of the INSURV deficiency number (1, 2 and 3 respectively).

B. Deficiencies will be identified by the following special classifications, as applicable:

1. Mission Degrading - A deficiency which caused a loss of 50% or more of a primary Required Operational Capability (ROC) as promulgated by CNO for the ship class.

2. Safety - A deficiency that could result in hazard to personnel or equipment damage. Safety deficiencies are identified by the suffix "S".

3. Reliability and Maintainability - Self explanatory. Ship's input is particularly valuable in identifying inherent equipment R & M problems. Reliability and maintainability deficiencies are identified by the suffixes "R" and "M" respectively.

4. Alteration - A deficiency that could be corrected by a shipalt. The deficiency is stated with recommended action to correct. Primarily for NAVSEA to solve. Identified by "A" vice "G" in the primary responsibility field of the INSURV number, e.g., 1A001AS vice 1G001AS.

5. PMS - identify problems with existing PMS procedures. Identified by the suffix " M".

C. All deficiencies, including those marked as corrected, will be listed on an advance report provided to the cognizant department head/division officer and in the final report which the Board will issue at a later date. The inspection quicklook message, transmitted the last day of the inspection, will list mission-degrading deficiencies, major safety deficiencies and part one deficiencies deemed appropriate.

D. Currently no automated direct input to the ship's CSMP exists. Ship's force must determine the appropriate action for each deficiency and manually enter as deferrals those which belong on the CSMP

9. **Inspection Timeline**

The following timeline is what we normally expect to accomplish each day of the inspection. If your ship is not in the Tidewater area (i.e. Mayport, Earle, etc), the Board members will normally arrive approximately 1000-1100. Day one events will move to the "right" accordingly. Events or schedule changes may necessitate deviation from this timeline.

DAY ONE

- Uniformed members of inspection team arrive and change into coveralls and assemble for inbrief. (Note: some technical assistants may arrive prior to 0800 and commence equipment checks).
- Inbrief to meet counterparts. Senior Inspector and ship's CO will also brief crew.
- Combat Systems brief of AAW DTE, Self-Defense DTE, and ASW Opdemo **immediately** following formal inbrief. (Note - normally, the Senior Inspector and ship's CO do not attend, but commence topside inspection). Technical assistants will commence evaluation of their assigned equipment.
- Commence equipment checks of ASW systems. It is imperative that checks of the fathometer be completed successfully, as this can be an "underway restrictive" if not cleared. Checks will include: SVTT air slugs, SCOT (if gyro can be set to correct heading) and various other system tests.
- Weapons inspectors will commence inspection of magazines and test of magazine sprinkler systems and alarms (“F", "FD”, and “FH”). If installed, space drainage eductors will be tested at the same time (otherwise while at sea). Ordnance handling equipment dedicated to a particular magazine (i.e. torpedo handling dollies, hoists, etc) are to be rigged and demonstrated at the same time. Live ordnance will not be used during handling demonstrations.
- Test of WQC-2 (Underwater Communications Set). An assist ship is required to respond to your test.

DAY TWO

- Underway
- Continue checks of installed equipment as directed by uniformed Board members and civilian assistants.
- SCOT if not conducted Day one.
- Stream towed array in preparation for ASW Opdemo. (Note - team should be organized, rehearsed, safety brief conducted, and appropriate safety equipment on station prior to actual streaming of "tail"). -
- Commence ASW Opdemo. Entire event should take approximately 15 minutes after SQR-19, sonobuoys and ematt are deployed.
- Upon completion of ASW Opdemo, retrieve towed array. Once array is retrieved, prepare to stream SLQ-25/25A torpedo decays. (Note - team should be organized, rehearsed, safety brief conducted and appropriate safety equipment on station prior to actual streaming).
- Inspect ordnance Material Handling Equipment (booms, slings, skids, pallet trucks) if not previously inspected.

- Inspect OTTO fuel spill kit.
- Return to port. Uniformed members depart.

DAY THREE

- Inspectors (NAVSSES) arrive and prepare to enter sonar dome for inspection of elements, cabling, pressurization system, etc. (Note: required paperwork is to be completed and air/water interchanges performed prior to inspectors arrival. At least one ship's force member will accompany the inspectors into the dome).
- Reinspection (if time permits and prior to noon) of deficiencies corrected by ship's force.
- Inspect items not previously looked at because of time constraints or environmental conditions.
- Inspectors depart to commence work on inspection report.

DAY FOUR

- Inspector arrives to brief department head/division officer and/or other interested personnel on results. (Note: Inspector provides a hard copy printout of deficiencies (Norfolk ships only) and a floppy disk with an ASCII file that can be printed out)

DAY FIVE

- Formal debrief (Senior Inspector and INSURV department heads).

10. **Recurring INSURV deficiencies.**

The following lists deficiencies that are seen most frequently as applicable:

MK-32 SVTT:

-HP air charging station auto-stop valves inoperative. Annual PMS.

- air flasks fail leak down or are overdue for hydrostatic test.
- charging station relief valves not set, hose hydrostatic test, gauges not calibrated and heavy corrosion.
- charging station reducing valve auto-stop valve failure.
- firing circuitry grounds.
- heater circuits grounded or inoperative.

OTTO II fuel spill kit air bottle hydrostatic test overdue and mask/hose assembly overhaul overdue.

Torpedo over-the-side handling equipment not weight tested, air hoist inoperative, manila vang lines beyond 5 year service date and missing equipment.

MK-24 torpedo dolly inoperative (brakes, missing parts, MK-137 adapter severe hydraulic leaks).

Torpedo strikedown system control box corroded or full of water; hatch leaks; hydraulic leaks; limit switches inoperative or misadjusted.

SQQ-89 system OJ-452 console displays misaligned.

Acoustic program will not display acoustic lines of bearing on CIC consoles.